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09/823,585	03/31/2001	Joshua T. Goodman	1018.128US1	6804

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WESTMAN CHAMPLIN (MICROSOFT CORPORATION)  
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EXAMINER
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LEWIS, DAVID LEE

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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07/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

09/823,585

Applicant(s)

GOODMAN, JOSHUA T.

Examiner

David L. Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 1-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Savolainen (2002/01126097).**

**As in claim 1, Savolainen, teaches of a method for selecting an intended word entered using a reduced keypad, where each of one or more keys of the reduced keypad is mapped to a plurality of letters, figure 1 item 10, paragraph 28, 29, figure 3, paragraph 69,**

**the method comprising: for an entered key input indicative of pressing one or more keys in the reduced keypad using a single-tap approach in which one of the keys is pressed only once for each letter such that each key press is mapped to only one letter, figure 3 item S1, paragraph 28 and 44-46,**

**determining one or more sequences of letters as the intended word based on a score for each of the one or more sequences of letters, figure 3 item S4-S6, paragraph 29, 56;**

and, presenting the one or more sequences of letters as the intended word, where a user selects the intended word from the one or more sequences of letters without resorting to a multiple-tap approach in which one of the keys is pressed at least once for each letter such that a number of times one of the keys is pressed indicates only one letter, **figure 3 item S7, paragraph 28, 46, 64,**

and where the user can indicate without resorting to the multiple-tap approach an accepted one or more initial letters of the intended word from the one or more sequences of letters, the one or more initial letters having less letters than the intended word, to cause redetermination of the one or more sequences of letters presented as the intended word, **figure 3 item S7 and S1, paragraph 28, 46, 64.**

Wherein Savolainen generally teaches displaying a selection of predicted possible words for input on a reduced key input device by means of sorting entered words according to a frequency of use as identified by a frequency of use number, with the most commonly used word listed first, new words capable of being added to a reference list from which words are analyzed and prioritized, also having a disambiguating system for displaying correctly, words that have been typed incorrectly.

**As in claim 18, Savolainen, teaches of a computer-readable medium having instructions stored thereon for execution by a processor to perform a method for selecting an intended word entered using a reduced keypad, where each of one or more keys of the reduced keypad is mapped to a plurality of letters, figure 1 item 10, paragraph 28, 29, 44,**

the method comprising: repeating, for an entered key input, a user having accepted a number of letters of the intended word, the number equal to zero or

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more and less than a number of letters of the intended word, **figure 3 item S1, paragraph 44 and 45,**

determining one or more sequences of letters as the intended word consistent with the entered key input and the number of letters accepted by the user, **figure 3 item S4, paragraph 44 and 45;**

presenting the one or more sequences of letters as the intended word to the user, **figure 3 item S7, paragraph 64;**

and, receiving indication that an additional one of the letters of the intended word has been accepted by the user, such that the number of letters of the intended word accepted is increased by one, until indication has been received that the user has selected one of the one or more sequences of letters presented as the intended word, **figure 3 items S2 to S3, S4-S7, S1, paragraph 65.**

Wherein Savolainen generally teaches displaying a selection of predicted possible words for input on a reduced key input device by means of sorting entered words according to a frequency of use as identified by a frequency of use number, with the most commonly used word listed first, new words capable of being added to a reference list from which words are analyzed and prioritized, also having a disambiguating system for displaying correctly, words that have been typed incorrectly.

**As in claim 27, Savolainen, teaches of a method for selecting a word entered using a reduced keypad, where each of one or more keys of the reduced keypad is mapped to a plurality of letters, figure 1 item 10, paragraph 28 and 29,**

the method comprising: receiving key input corresponding to the word, the key input having a left context, **figure 3 item S1 paragraph 44;**

for each word in a vocabulary that is consistent with the key input, determining a probability of the word given the left context, and adding the word and the probability of the word to an array of word-probability pairs, **paragraphs 56 and 57;**

finding one or more potential words from a dictionary of words, where each potential word has a cost between the entered key input and a sequence corresponding to the potential word less than a maximum cost, **figure 10 item S107 and S108, paragraph 86;**

determining a probability of each potential word given the left context and taking into account a probability that each letter of the potential word is misspelled, and adding the potential word and the probability of the word to the array, **paragraph 54-56, wherein disambiguating reads on said limitation;**

determining one or more sequences of letters consistent with the entered key input and a number of letters accepted by a user, the number equal to zero or more, the one or more sequences of letters including at least one sequence of letters for each letter corresponding to a number within the entered key input immediately after a part of the entered key input corresponding to the number of letters accepted by the user, **figure 3 item S1, paragraph 44 and 45, paragraph 83 and 90, wherein alpha numeric strings are linked to the text entry;**

determining a probability of each sequence of letters taking into account an out-of-vocabulary penalty and a first occurrence bonus, and adding the sequence of letters and the probability of the sequence of letters to the array, **paragraph 56, 73-75,** wherein new words are added to the list of referenced words, wherein these new words are sorted according to decreasing frequency of use, said

frequency of use being equivalent to a weighted or bonus system, the out of vocabulary penalty is based on the words coming from outside the original set of vocabulary and being added to that list, because the words where never used, they are less weighted or in other words have a penalty;

sorting the array of word-probability pairs in decreasing order of probability, **figure 10 item S108, paragraph 56, 86;**

and, presenting a first number of words from the array of word-probability pairs to the user, where the user selects the word corresponding to the entered key input from the first number of words presented, **figure 10 item S109/S110, figure 3 item S7/S8**

and where the user can indicate additional letters have been accepted to increase the number of letters accepted by the user, wherein the number of letters accepted is less than a number of letters in the word and to cause redetermination of the one or more sequences of letters, **figure 10 item S109 and S101/S103, figure 3 item S7 and S1/S3.**

Wherein Savolainen generally teaches displaying a selection of predicted possible words for input on a reduced key input device by means of sorting entered words according to a frequency of use as identified by a frequency of use number, with the most commonly used word listed first, new words capable of being added to a reference list from which words are analyzed and prioritized, also having a disambiguating system for displaying correctly, words that have been typed incorrectly.

**As in claim 35, Savolainen, teaches of a apparatus, figure 1 item 10, paragraph 29** comprising: a plurality of keys of a reduced keypad, each of one or more of the keys mapped to a plurality of letters, the plurality of keys used to

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enter key input corresponding to a word using a single-tap approach in which one of the keys is pressed only once for each letter, the key input having at least one of a left context and a right context, **figure 1 item 14, paragraph 28, 30 and 31;**

and, a word-determining logic designed to determine one or more sequences of letters as the word and to present the one or more sequences of letters, where a user selects the word corresponding to the key input from the one or more sequences of letters without resorting to a multiple-tap approach in which one of the keys is pressed at least once for each letter, **figure 2 item 28 and 32, paragraph 28, 29, 32, and figure 3,**

and where the user can indicate without resorting to the multiple-tap approach an accepted one or more initial letters of the word from the one or more sequences, the one or more initial letters having less letters than the word, to cause redetermination of the one or more sequences of letters presented, **figure 1 item 16b, paragraph 31 and 34, paragraph 54-56, wherein disambiguating reads on said redetermination.**

Wherein Savolainen generally teaches displaying a selection of predicted possible words for input on a reduced key input device by means of sorting entered words according to a frequency of use as identified by a frequency of use number, with the most commonly used word listed first, new words capable of being added to a reference list from which words are analyzed and prioritized, also having a disambiguating system for displaying correctly, words that have been typed incorrectly.

**As in claim 2, 19, 28, 36, Savolainen, teaches of, wherein the reduced keypad is a numeric keypad, paragraph 30.**



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**As in claim 3, 20, Savolainen**, teaches of, wherein the sequences of letters each corresponds to a word not listed in a predetermined dictionary, paragraph 54 and 74.

**As in claim 4, Savolainen**, teaches of, wherein the sequences of letters each corresponds to a pseudo-word, paragraph 54.

**As in claim 5, Savolainen**, teaches of, further comprising receiving selection of the intended word from the user from the one or more sequences of letters, figure 1 item 16b.

**As in claim 6, Savolainen**, teaches of, further comprising: receiving indication of a first letter of the intended word from the user, figure 3 item S1; and, repeating the method such that the one or more sequences of letters are redetermined taking into account the first letter of the intended word indicated by the user, figure 3 item S2.

**As in claim 7, Savolainen**, teaches of, further comprising: receiving indication of a second letter of the intended word from the user; and, repeating the method such that the one or more sequences of letters are redetermined taking into account the first and the second letters of the intended word indicated by the user, figure 3 item S2.

**As in claim 8, Savolainen**, teaches of, wherein the user has accepted a number of letters of the intended word, the number equal to zero or more, figure 3 item S1, and determining the one or more sequences of letters comprises determining the one or more sequences of letters consistent with the entered key input and the number of letters accepted by the user, figure 3 item S4-S6, paragraph 56.

**As in claim 9, 21, Savolainen,** teaches of, wherein the one or more sequences of letters comprises a sequence of letters for each letter corresponding to a number within the entered key input immediately after a part of the entered key input corresponding to the number of letters accepted by the user, figure 3 item S8, paragraph 56 and 65.

**As in claim 10, 22, Savolainen,** teaches of, wherein the sequences of letter for each letter corresponding to the number within the entered key input immediately after the part of the entered key input corresponding to the number of letters accepted by the user comprises a most likely sequence of letters for each letter corresponding to the number within the entered key input immediately after the part of the entered key input corresponding to the number of letters accepted by the user, paragraph 34, 56, and 57.

**As in claim 11, Savolainen,** teaches of, wherein the most likely sequence of letters for each letter corresponding to the number within the entered key input immediately after the part of the entered key input corresponding to the number of letters accepted by the user is determined by using a letter language model, paragraph 56 and 78.

**As in claim 12, Savolainen,** teaches of, wherein using the letter language model comprises using an n-gram letter model, paragraph 56, wherein the features of the vocabulary module tree data structure is that the objects associated with each node are stored in the node data structure according to their frequency of use.

**As in claim 13, 23, 32, Savolainen,** teaches of, wherein determining the one or more sequences of letters comprises using a letter language model, paragraph 56.

**As in claim 14, 24, 33, Savolainen,** teaches of, wherein using the letter language model comprises using an n-gram letter model, paragraph 56 and 57, said n-gram being probabilistic frequency related.

**As in claim 15, 25, Savolainen,** teaches of, further comprising receiving the entered key input, figure 3 item S1.

**As in claim 16, 26, Savolainen,** teaches of, further comprising: determining a word corresponding to the entered key input as the intended word, figure S1; determining whether the word determined is in a dictionary of words, figure 3 item S4; and, ending the method in response to determining that the word determined is in the dictionary of words, figure 3 item S7 and S8.

**As in claim 17, Savolainen,** teaches of, wherein the method is performed by execution of a computer program by a processor from a computer-readable medium, figure 2 item 28 and 32, paragraph 29 and 32.

**As in claim 29, Savolainen,** teaches of, further initially comprising, for each word in a cache that is consistent with the key input, determining a probability of the word given the left context, and adding the word and the probability of the word to an array of word-probability pairs, paragraph 73 and 74, wherein new words can be added to the vocabulary module.

**As in claim 30, Savolainen,** teaches of, further comprising: for each word in the vocabulary that is consistent with the key input as an initial part of the word, determining a probability of the word given the left context, figure 10 item S108, and, upon determining that the probability is greater than a greatest probability so far determined, setting the greatest probability to the probability and a greatest probability word associated with the greatest probability to the word, paragraph 57; upon determining that the greatest probability is at least a number of times

greater than a word of a first word-probability pair of the array of word probability-pairs, adding the greatest probability word associated with the greatest probability and the greatest probability a new first word-probability pair to the array, paragraph 57, figure 10 item S102.

**As in claim 31, Savolainen,** teaches of, further comprising: finding one or more additional potential words from the dictionary, where each additional potential word has a cost between the entered key input and a prefix of a sequence corresponding to the potential word less than a maximum cost, figure 10 item S108; determining a probability of each potential additional word given the left context and taking into account a partial word penalty, and upon determining that the probability is greater than the greatest probability so far determined, setting the greatest probability to the probability of the potential additional word and the greatest probability word associated with the greatest probability to the potential additional word, paragraph 57 and 86.

**As in claim 34, Savolainen,** teaches of, wherein the method is performed by execution of a computer program by a processor from a computer-readable medium, paragraph 29 and 44, figure 2 item 28 and 32.

**As in claim 37-40, Savolainen,** teaches of, further comprising a spell-checking logic designed to provide potential alternative words for the word corresponding to the key input entered, where the word is misspelled, taking into account that the word was entered using the plurality of keys, as opposed to a keyboard having a unique key for each of a plurality of letters, paragraph 54, having a disambiguating system for displaying correctly, words that have been typed incorrectly, therefore serving a spell check feature.

**As in claim 41, Savolainen,** teaches of, wherein the apparatus is a telephone, figure 6.

**As in claim 42, Savolainen,** teaches of, wherein the apparatus is a mobile telephone, figure 6.

**As in claim 43, Savolainen,** teaches of, wherein the apparatus is one of; a cellular telephone, a corded telephone, a cordless telephone, a digital telephone, and a radio telephone, figure 6, paragraph 79 and 88.

**As in claim 44, Savolainen,** teaches of, wherein the apparatus is one of; a pager, a desktop computer, a laptop computer, a handheld device, a personal-digital assistance (PDA) device, and a remote control device, paragraph 88 wherein said alternatives fall within an "electronic device" of the portable type.

**As in claim 45, Savolainen,** teaches of, wherein the word-determining logic comprises a computer program stored on a computer-readable medium for execution by a processor, figure 2 item 28 and 32, paragraph 32 and 44.

### ***Response to Arguments***

2. Applicant's arguments filed 12/22/2006 have been fully considered but they are not persuasive. Savolaninen reads on the claimed invention. **Applicant argues** Savolainen teaches away from selection of individual letters without using a multiple tap approach. The Examiner disagrees. Savolainen's teaches of the problem associated with multiple taps and advances an invention to overcome the short coming of the multiple tap, see paragraphs 6 and 28, wherein Savolanen specifically mentions the multi tap method in distinction to the one keystroke per letter approach as claimed. **Applicant argues** of having a single

tap approach however the claim language discusses "one of the keys is pressed at least once for each letter". Therefore if a sequence has more than one letter it becomes a multi tap sequence used to input data. If a single letter or key is tapped once another key must be tapped to select or enter the selection, and therefore even a single letter approach technically includes a multiple tap approach. **Applicant argues** Savolainne does not enable the user to accept one or more initial letters of an intended word without using a multiple tap approach in which the initial letters have less letters than the intended word. The Examiner seriously disagrees. Savolainen teaches of keys as well as a sequence of letters being input by the keys being mapped to lists of words that prevent the need to type the entire word with the keys. Wherein the user can type the one key or a sequence of keys to input a word. Further, if the user inputs a word that is spelled incorrectly, the word will be corrected for the user.

**Rejection maintained.**

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or

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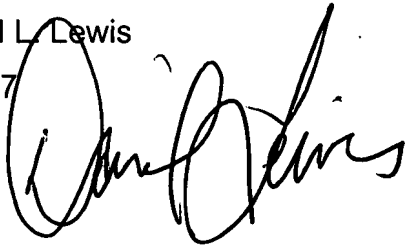
proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

4. Please note that all future correspondences directed to David L. Lewis must be sent to Art Unit 2629.
5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner: David L. Lewis

January 17, 2007

A handwritten signature in black ink, appearing to read "David L. Lewis", is written over the printed name and date.